

**APPENDIX 12**  
**APPLICATION DEVELOPMENT TEAM**

# Application Development Team - Introduction

Application development team composition and size varies, depending on the team function and size of the project. There are several different types of teams that support AIS development, and a variety of personnel that comprise the teams.

This Appendix discusses the types of personnel and teams, and suggests a personnel mix for the different types of teams.

## Development Team Members - General Qualifications

Team members should possess the following qualifications:

- € Knowledge in a specific business area
- € Understanding of the Corps' mission and business processes
- € Understanding of the Corps' automation infrastructure
- € Understanding of the Corps current information architecture
- € Understanding of the Corps Information Modernization Plans
- € Ability to organize tasks and coordinate actions
- € Ability to develop ideas using creative approaches
- € Demands excellence and commitment to effort
- € Ability to synthesize diverse views
- € Willing to travel
- € Good listening skills
- € Ability to identify and accept new courses of action
- € Works well as a team member
- € Team goals are accepted as individual goals
- € Willingness to accept responsibility for work

## Appendix 12 - Application Development Team

## Development Team - Types

The following table lists and describes the various types of teams that could support an AIS project.

Team	Description
Management Team	Responsible for project management, financial management, and all hardware, software, acquisition, and personnel decisions. Oversees the project from beginning to end. Included the FP, PM, the SD and selected functional oversight personnel. "The buck stops here."
Process Improvement Team	This team, otherwise known as a STRAP team, analyzes the current business processes, and identifies areas for improvement.
Data Team	Responsible for adherence to the Command Data Model and Command Data Dictionary. Oversees database design, development and maintenance, data administration, and development of data elements and entity relationships.
Application Development Team	Responsible for actually designing and developing the application itself, both in prototype and final versions.
Test Team	This team may be involved in testing at various systems development stages, as well as testing the finished AIS.
Deployment Team	Specifically manages all details for planning and deploying the new AIS to the field.
Training Team	Responsible for training all personnel who will use or maintain the newly developed AIS; will develop training to address updates as they happen.
Operations Team	Involved in all development activities related to deployment and operations, and conducts "ground truth" testing required to put the system in place and make it run.
Application Management Team	Responsible for maintaining the AIS, in all its aspects, after deployment has taken place. This includes software maintenance and enhancement, software modernization, and programming funds for hardware/software upgrades required for technical reasons.

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**Development Team - Personnel**      The table below describes the personnel that could support an AIS project.

Types of Personnel	Description
AIS Project Manager	€ Responsible for insuring that a deployed AIS operates, and functions properly for the end user.
	€ Controls the Engineer Change Process (ECP) up to and through Deployment Phase.
	€ Responsible for AIS deployment planning up to the point of transition to the OM.
	€ Coordinates with Operations Manager and appropriate level Configuration Control Committee for changes to hardware, operating system, and DBMS.
	€ Responsible for critical design decisions.
	€ Meets Project Manager qualifications cited in ARs & FIRMR
Project Leader	€ Coordinates between team and proponent.
	€ Serves as project leader as well as functional team member.
	€ Encourages individual team member participation, but asserts leadership when required.
	€ Meets interim completion dates.
System Developer	€ The designated organization which is responsible for information system technical development, modification, and/or maintenance.

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Types of Personnel	Description
Data Manager	<ul style="list-style-type: none"> <li>€ Employs the Corps Encyclopedia for existing data definitions and models that can be used for this project.</li> <li>€ Maintains fully attributed and normalized project data models in the Corps Encyclopedia that adhere to the naming conventions.</li> <li>€ Proposes data definition changes or additions to the Command Data Model.</li> <li>€ Participates in the trial integration of project data models and the CDM.</li> <li>€ Submits the final data model, including all objects and definitions, to the HQ data administrator after design approval.</li> <li>€ Generates a physical model from the data model.</li> <li>€ Maintains the physical model to assure integration of the user application interfaces developed by project members.</li> <li>€ Coordinates the preparation of a test data base.</li> <li>€ Assists in performance analysis and make data base changes.</li> <li>€ Maintains data base security and integrity.</li> <li>€ Interfaces with functional experts and data/database administrators.</li> </ul>
Facilitator	<ul style="list-style-type: none"> <li>€ Knowledgeable in application development methodology (IDEF, team management, prototyping).</li> <li>€ Experienced in implementing data-driven user-oriented applications systems</li> <li>€ Expert at dynamic group management.</li> </ul>
Data Base Expert	<ul style="list-style-type: none"> <li>€ A specialist in translating logical data models into physical data models.</li> <li>€ A specialist in database design.</li> </ul>
Technical Librarian	<ul style="list-style-type: none"> <li>€ Oversees configuration management of the software tools being used.</li> <li>€ Oversees configuration management of the application modules.</li> <li>€ Keeps logs of system updates and their status.</li> <li>€ Maintains master sets of all documentation, to include code.</li> </ul>
Technical Editor	<ul style="list-style-type: none"> <li>€ Prepares manuals and documents supporting the AIS. Includes user manuals, administration manuals, and operations manuals.</li> <li>€ Expert in the application of technology to the support of the business function supported by the AIS.</li> <li>€ Used in STRAP effort, conceptual design, IPR and testing.</li> </ul>

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Types of Personnel	Description
Subject Matter Experts	<ul style="list-style-type: none"> <li>€ Experienced in the business area covered by the project.</li> <li>€ Represent the functional area to the project.</li> <li>€ Supplies information to functional counterparts throughout the Corps.</li> <li>€ Has knowledge of comparable business process functions in other major subordinate commands.</li> <li>€ Functional experts should come from a range of management levels (current supervisors; MSC or HQ staff).</li> </ul>
End Users	<ul style="list-style-type: none"> <li>€ Personnel at all organizational levels, who will be the day-to-day users of the system.</li> <li>€ Normally used for STRAPs, IPRs, and testing.</li> </ul>
Administration Support	<ul style="list-style-type: none"> <li>€ Arranges meetings.</li> <li>€ Orders supplies.</li> <li>€ Handles word processing, and data entry for test data, as required.</li> <li>€ Handles phone calls and messages.</li> </ul>
Functional Proponent	<ul style="list-style-type: none"> <li>€ The staff element, Command, or agency designated by the MDA to serve as the responsible agent for the business process requirements of the AIS.</li> </ul>
STRAP Team Leader	<ul style="list-style-type: none"> <li>€ Oversees a STRAP effort (a process for business or activity planning which uses the standard DoD IDEF methodology).</li> </ul>
Modeler	<ul style="list-style-type: none"> <li>€ Responsible for activity and data modeling.</li> </ul>
Lead Programmers	<ul style="list-style-type: none"> <li>€ Responsible for a team of people which does the application coding.</li> </ul>
Programmer	<ul style="list-style-type: none"> <li>€ One of a group of technical specialists that actually code the application.</li> </ul>
Information Engineer	<ul style="list-style-type: none"> <li>€ Trained in information engineering principles and methodologies.</li> <li>€ Trained in determining cross functional data flows.</li> </ul>
Operations Manager	<ul style="list-style-type: none"> <li>€ Responsible for deployment activities and operations after AIS transition from the PM.</li> <li>€ Ensures that assigned hardware operating platforms and associated ADPE operate properly and provide required service levels to all "customers".</li> </ul>
ADP Systems Analyst	<ul style="list-style-type: none"> <li>€ Analyzes and develops solutions to all hardware, software and telecommunications requirements.</li> </ul>

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Types of Personnel	Description
Financial Analyst/ Budget Analyst	<p>€ Develops and manages cost estimates, budgets and other financial matters relating to the project.</p> <p>€ Prepares cost estimates, analyses and reports to support PM, SD, OM and AM life cycle requirements.</p>
Test Manager	<p>€ Responsible for quality testing during the alpha, beta, and field release, as well as any intermittent testing.</p>
Software Engineer	<p>€ Responsible for developing the software systems architecture, setting programming standards, and designing the applications "blueprint".</p>
Configuration Manager	<p>€ Responsible for the overall unity and integrity of the software development process. Assigns CSCI's/CSC's/CSU's for development/modification.</p> <p>€ Logs possession/usage of source codes, tracks changes, and ensures continuity.</p>
Application Manager	<p>€ Responsible for maintaining the application and data base for the full life cycle of the application.</p> <p>€ Handles changes, updates, version control, software upgrades, and AIS integration issues.</p> <p>€ Controls all ECP management and execution of the AIS after deployment.</p> <p>€ Provides principal input to FP and MDA concerning AIS status during Phase IV and at Milestone IV.</p> <p>€ Principal POC for user concerns and interface with other AIS proponents.</p>
Training Developer	<p>€ Selects training media, and designs, develops and tests the training materials.</p>
Trainer	<p>€ This is the person who teaches the use of the AIS, as deployed.</p>
Facility Engineer	<p>€ Responsible for site planning, cabling, power, heating, ventilation, air conditioning, and minor facility construction or modification requirements.</p>
Telecommunications Engineer	<p>€ Installs networks and communications facilities.</p> <p>€ Monitors performance and troubleshoots, repairs, and maintains as necessary.</p>
Computer Operator	<p>€ Operates mainframes/minicomputers.</p>
Systems Administrator	<p>€ Responsible for controlling and managing system access for applications, version control and installation, and for system performance monitoring at appropriate levels.</p>

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Types of Personnel	Description
Information System Security Officer (ISSO)	<p>This position is required by regulation DoD 5200.28, AR 380-19.</p> <ul style="list-style-type: none"> <li>€ Develops security safeguard plan.</li> <li>€ Ensures accreditation of AIS.</li> <li>€ Ensures security policies of the deployed AIS.</li> <li>€ Periodically reviews audit trails.</li> <li>€ Ensures user security requirements of users prior to AIS access.</li> <li>€ Maintains security plans and upgrades or improvements.</li> <li>€ Coordinates with other affected ISSO, Network Security Officer (NSO), Terminal Area Security Officer (TASO), and the Information Systems Security Manager (ISSM,) as necessary (see AR 380-19).</li> </ul>
Procurement Specialist	<ul style="list-style-type: none"> <li>€ Responsible for all contracting actions.</li> </ul>
Visual Information/ Publications Specialist	<ul style="list-style-type: none"> <li>€ Responsible for proper use of visual standards (use of typographic and graphic symbols used to represent the organization).</li> </ul>
Records Management Specialist	<p>Note: This position is required by law (Paperwork Reduction Act, 1995)</p> <ul style="list-style-type: none"> <li>€ Ensures proper records management procedures are followed.</li> </ul>

## Development Team Composition

The following table is a general guide to AIS team composition. The teams may be structured differently depending on the particular AIS.

Types of Personnel	Management Team	Process Improvement Team	Data Team	Application Development Team	Test Team	Deployment Team	Training Team	
AIS Project Manager	X					X		
Project Leader				X	X	X	X	
System Developer	X			X	X	X		
Data Manager	X	X	X	X				
Facilitator		X	X		X			
Data Base Expert			X	X	X			

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Types of Personnel	Management Team	Process Improvement Team	Data Team	Application Development Team	Test Team	Deployment Team	Training Team	Operations Team	Application Management Team
Technical Librarian	X		X	X					X
Technical Editor			X	X	X		X		
Subject Matter Experts	X 4	X			X		X		
End users	X 2	X			X	X	X 3		
Administration Support	X	X	X	X	X	X	X	X	X
Functional Proponent	X								
STRAP Team Leader		X							
Modeler		X	X						
Lead Programmers			X	X					X
Programmer				X					X
Information Engineer		X	X	X	X				X
Operations Manager	X 2				X	X		X	
ADP Systems Analyst			X	X	X	X			X
Financial Analyst	X	X							
Test Manager					X				
Software Engineer		X	X	X	X				X



## Appendix 12 - Application Development Team

Types of Personnel	Management Team	Process Improvement Team	Data Team	Application Development Team	Test Team	Deployment Team	Training Team	Operations Team	Application Management Team
Configuration Manager		X	X	X	X				X
Application Manager				X 3					X
Training Developer	X 4					X	X		
Trainer					X				
Facility Engineer						X		X	
Telecommunications Engineer				X		X		X	X
Computer Operators								X	
System Administration								X	
Information System Security Officer	X			X	X				
Procurement Specialist	X								
Visual Information/ Publications Specialist				X					
Records Management Specialist	X			X					

1 Could be assigned application maintenance duties in which case the MD could become the manager.

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- 2 A senior representative.
- 3 Considered to be part of the training team used in the Train-The-Trainer process.
- 4 At least need to interface with the management team to clarify expectations.

## Appendix 12 Application Development Team

### Application Development Skills or Knowledge Requirements

The following list shows the principal skills and knowledge most required of team members during an AIS development project. This list is supported by courses and resources that already exist. This list is *not* all inclusive, as special requirements may exist for your AIS.

#### 1. *Planning, Requirements and Design*

##### Code Title

- A1 ISMP Goals, Objectives and Plans.
- A2 LCMIS and Information Engineering Methodology Overview.
- A3 Application Development Project Methodology: specific activities and deliverables
- A4 IDEF Modeling Techniques: Overview & Practical Application (Matrix: X<sub>1</sub> = Overview; X<sub>2</sub> = Practical Application; X<sub>3</sub> = Both)
- A5 Software Engineering
- A6 Corps of Engineers Data Administration Goals, Objectives, Policies, and Guidelines.
- A7 Corps of Engineers Database Administration Goals, Objectives, Policies, and Guidelines.
- A8 Software Project Management.

#### 2. *Development of Interactive Relational Database Information Systems*

##### Code Title

- B1 Relational Database Concepts.
- B2 Oracle (and SQL) for Developers.
- B3 SQL\*Forms design and development.
- B4 SQL\*ReportWriter design and development.
- B5 Ada Programming for Business Applications
- B6 Oracle Client/Server Architecture.
- B7 Advanced Oracle for Developers.
- B8 UNIX for Developers

#### 3. *Data Administration, Database Administration, and Performance*

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### *Tuning*

<u>Code</u>	<u>Title</u>
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C1	Oracle Database Administration.
C2	Oracle Application Performance Tuning.
C3	Oracle Client/Server Performance Analysis.
C4	UNIX, File Management Optimization.
C5	UNIX, Communications in the Client/Server Mode.

#### *4. Functional User Design and Evaluation*

<u>Code</u>	<u>Title</u>
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D1	Introduction to SQL for End Users.
D2	Oracle for End Users.
D3	SQL*Forms for End Users.
D4	SQL*ReportWriter for End Users.

#### *5. Concepts and Operations of the New Application*

<u>Code</u>	<u>Title</u>
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E1	Conversion Tool Use.
E2	Manual Conversion Procedures
E3	Overview of the Conceptual Design of the Application.
E4	Procedures of the New Application -- for each class of user.

### **Application Development Team - Matrix of Roles and Required Skills**

The following matrix shows the skills generally required for each identified role in the AIS development project. This matrix is presented as a guide only. The mix of skills may differ depending on the personnel selected for your AIS project.

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Types of Personnel	A1	A2	A3	A4	A5	A6	A7	A8	B1	B2	B3	B4	B5	B6	B7	B8	C1	C2	C3	C4	C5	D1	D2	D3	D4	E1	E2	E3	E4
AIS Project Manager	X	X	X	X <sub>2</sub>				X	X													X	X	X	X				
Project Leader	X	X	X	X <sub>2</sub>				X	X													X	X	X	X				
System Developer	X	X	X	X <sub>3</sub>	X	X	X	X	X				X	X															
Data Manager	X	X	X	X <sub>2</sub>		X	X		X	X	X			X		X	X	X		X									
Facilitator	X	X	X	X <sub>3</sub>		X	X	X	X								X												
Data Base Expert	X	X	X	X <sub>3</sub>		X	X		X	X							X	X		X			X	X	X				
Technical Librarian	X	X		X <sub>3</sub>																								X	
Technical Editor			X			X																						X	
Subject Matter Experts	X	X																											
End users	X																						X	X	X				
Functional Proponent	X	X		X <sub>1</sub>																									
STRAP Team Leader	X	X		X <sub>2</sub>																									
Modeler	X	X	X	X <sub>3</sub>					X								X												
Lead Programmer	X	X	X	X <sub>2</sub>					X	X	X	X	X	X	X	X	X	X	X	X									
Programmers	X	X	X	X <sub>2</sub>					X	X	X	X	X	X		X													

- Notes on A4 - See previous skill list

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Types of Personnel	A1	A2	A3	A4	A5	A6	A7	A8	B1	B2	B3	B4	B5	B6	B7	B8	C1	C2	C3	C4	C5	D1	D2	D3	D4	E1	E2	E3	E4
Information Engineer	X	X	X	X <sub>3</sub>		X	X		X																				
Operations Manager	X	X																	X		X								
ADP Systems Analyst	X	X	X											X					X		X							X	X
Financial Analyst	X																												
Test Manager	X	X	X						X													X	X	X	X	X	X	X	X
Software Engineer			X	X <sub>3</sub>	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X								
Configuration Manager		X	X			X					X	X	X	X		X													
Application Manager	X	X	X	X <sub>3</sub>		X	X		X					X			X	X	X	X	X	X	X	X	X		X	X	X
Training Developer	X	X																				X	X						
Trainer	X																												
Computer Operators	X													X					X		X	X	X					X	X
System Administration	X	X	X														X											X	X

- Notes on A4 - See previous skill list

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Types of Personnel	A1	A2	A3	A4	A5	A6	A7	A8	B1	B2	B3	B4	B5	B6	B7	B8	C1	C2	C3	C4	C5	D1	D2	D3	D4	E1	E2	E3	E4
Information Systems Security Officer	X	X	X														X				X							X	X
Procurement Specialist	X	X	X																									X	
Visual Information/ Publications Specialist	X	X	X																			X	X	X	X			X	
Records Management Specialist	X		X																			X	X	X	X			X	

- Notes on A4 - See previous skill list

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